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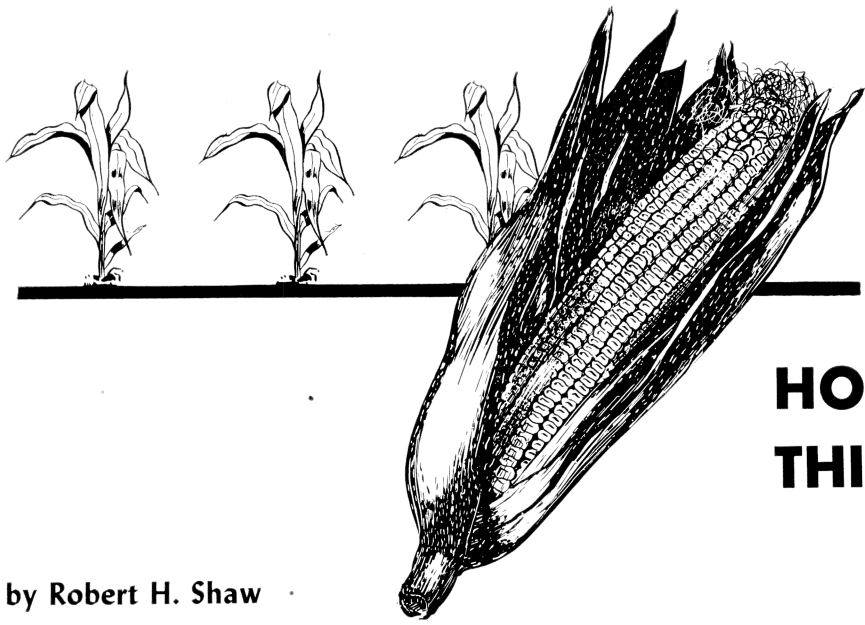

HOW MUCH CORN THIS FALL?

by Robert H. Shaw

THERE'S LESS corn in Iowa corncribs this summer than for a good many years. So there's more than the usual concern over what this season's crop will be.

Corn stocks on Iowa farms last April 1 were estimated at 136.5 million bushels. That was 54 percent lower than in 1947, and the lowest for this state since 1937. The 10-year average (1937-46) is 275.6 million bushels. Oat stocks—at 65 million bushels—were about 20 percent below the normal April 1 carryover.

All this makes our 1948 crop season especially important. With the corn crop well on its way, let's see how the season stacks up so far. What can we look for in the way of final production?

Good Planting

Warm, sunny weather during planting season helped farmers get their corn in this spring. About 75 percent of our 1948 corn crop was planted by May 23, Iowa crop reports show. That's about average for Iowa; but there was quite a little variation over the state. Southern Iowa was later than usual; some other sections were early.

Starting right here—with this year's planting dates—let's set up a rough schedule of what ordinarily happens to our corn crop during the remainder of the season. We'll have to make some allowances for temperature and rainfall as the season unfolds; but the schedule should give us some idea of what to expect.

Last year we measured the time (in days) it took several hybrids to develop through different growth stages. One year's results are not enough to predict with much accuracy what will happen again, especially since last year's weather was "even more abnormal than usual." But last year's figures give us something definite to start with. They'll do for a schedule—if we remember to make allowances.

Last year the average period between planting time and emergence was about 10 days. Perhaps you didn't keep track of your corn this spring— but some we know of came up in 7 days. Planting weather was about normal in 1947. With weather rather favorable this spring, the average date from planting to emergence was probably 8 or 9 days.

Next come the tassels. Last year it took about 72 days for central Iowa hybrids to tassel out after the first shoots of corn emerged from the ground. Here there's a little more variation, however. Most of the evidence we've collected so far shows that the length of the "vegetative" period—from emergence to tasseling—is rather directly affected by weather conditions. Early growth was delayed in 1947; then July weather helped things along enough to catch up some. In an average year tasseling will take a few days less than last year, depending on the weather and varieties. Late varieties took 76 days during this period last year, early varieties only 65 days; so you can expect varieties to make some difference. Let's use 70 days for our timetable.

About 6 days was the average interval between tasseling and silking last year. Now let's add these times together:

From planting to emergence	8 days
From emergence to tasseling	70 days
From tasseling to silking	6 days
From planting to silking	84 days

This gives us about 84 days between planting time and silking for average Iowa hybrids. And it is silking that is the most important date-setter for the maturity of your corn.

Average figures put out by the Iowa crop reporting service give 84, 78 and 83 days for the last 3 years. The 10 years before that range from 70 to 78 days from planting to 75 percent silked. So perhaps our schedule is still a little slow. But let's go back and set up our schedule using tentative dates.

The Iowa crop reporting service tells us that 75 percent of our corn was planted by May 23 of this year. So let's suppose that your corn was planted on May 20. (If you planted earlier or later than this date, just move the schedule ahead or back to fit actual planting dates.) Then it should have been about 50 percent emerged on about May 28. To this date we add 70 days until tasseling. That brings us through June and July and up to August

6. Our figures were for 75 percent tasseling in the field, so according to this schedule your corn would be 75 percent tasseled on August 6. From tassel to silk (also 75 percent) is 6 days—your corn would be 75 percent silked on August 12.

Just a Schedule

We think your corn may run close to this timetable, but we're not sure. More important than the complete schedule is the progress from one growth stage to the next. Over the shorter periods between stages we should be able to gauge actual plant growth fairly well. It's during the growing stage—planting to silking—that most of the differences in growth rate come.

Now comes a timetable that we are more sure about. Once your corn is silked, we don't believe there's much variation in the time it takes it to mature. We've found it takes about 50 days from the time the corn is 75 percent silked until it is mature. This holds true for early and late varieties alike. And as far as we are able to tell it doesn't make too much difference what the weather is during that time. It still matures in 50 days.

But here's a word about "maturity." In these experiments we have called corn mature when it first reached its maximum dry weight. This might also be called the point of maximum feed value. At this point all of the food that is going to be stored in the kernels has been stored there. For the Iowa corn varieties we tested, this point is reached at about 32-35 percent moisture on the average. But there may be quite a bit of variation in this. Some later (Missouri) varieties matured with as much as 40 to 45 percent moisture.

Now let's get back to our timetable. With corn 75 percent silked on Aug. 12, your corn should be mature on Oct. 1—50 days later. Your corn may not be dry enough to crib on that date. But a killing frost (50 days after 75 percent silk) will not lower the final feeding value of your corn.

It is during the early stages of plant growth that the potential (final yielding capacity) of a corn plant is established. By the time your corn is knee-high the largest number of kernels which it will be possible for each plant to develop on each ear will have been determined. This doesn't decide the final number that will actually develop. That remains to be seen. But the upper limit is fixed at about knee-high growth. If weather stunts this development, it's genetic potentialities—its full yielding ability—may not be fully realized.

First It's Temperature

From planting time to early July it's usually temperature that is more important. Ordinarily, moisture isn't a problem during this time of the year. Rains are (usually) frequent. And with any kind of a normal season at all, there's enough moisture in our Iowa soils to keep corn growing fairly well until the first of July. It's the warm, sunny weather that brings corn out of the ground and starts it growing fast. By early July corn has entered its main period of growth. The root system is well developed and the plant begins to use large amounts of moisture and soil nutrients in its growth.

Then It's Moisture

Then some time in late June, or the first week or two in July—we don't know exactly when—moisture becomes more important than temperature. It's nearly always warm enough for normal growth during this part of the season. The plants are large now, and it takes lots of water to keep them growing. With frequent rain, spells of very hot weather won't do much damage to your corn.

It's when moisture is hard to find that those blistering midsummer days curl the leaves and sometimes cause them to fire. This kind of weather won't hold back maturity; it may even hurry it along—we don't know for sure. But it does do real damage to the yield. Every farmer knows about that. Obviously, any year that we have low rainfall and unusually high temperature throughout the season our corn crop will suffer.

But we can break it down still more: It's the cold, wet springs that slow up growth rate. In the early part of the season it may lower your yields somewhat; later on it makes for soft corn. It's hot, dry weather later on that cuts into total yields most.

With an eye to the weather, these growing schedules also can help us estimate the chances for soft corn too. Three things contribute to soft corn: (1) date of silking; (2) the date of the first fall freeze; and (3) the kind of "drying weather" we have. Of course, the silking date harks back to what took place earlier in the season. A wet, cold spring usually delays planting. And during the early portion of the growing season cold, wet weather can still slow up the growth rate somewhat. We know this kind of weather can make a few days difference in the silking date; but beyond that we don't have enough evidence to say just what the effect is. Once the silking date is established—early or late—then it's our fall weather that makes (or does not make) soft corn.

Drying Weather Needed

After maturity, or after the first fall freeze, it still takes dry weather to get moisture down so you can crib corn safely. Naturally, if corn matures late, this drying process is going to be slower. But even with normal maturity—wet, cool weather will make it hard for your corn to dry.

We have estimated that your corn will reach maximum feeding value about 50 days after the corn has silked out. If the first freeze doesn't come before that date, you won't lose any feed value in your corn. But whether it is "soft" or not may be another question.

We got off to a good start so far this year. As the season progresses you can check the growth of your corn with this rough timetable. Then make some allowance for the weather and temperature conditions we've had; readjust the schedule as the growth of your corn develops ahead of or behind the schedule we've suggested. Then you'll have some idea of what to look for in your corncrib this fall.